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EXAMINER

HOANG, MICHAEL G

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte RAINER HAIN and MARTIN ALLGAIER

Appeal 2015-002216
Application 13/128,933¹
Technology Center 3700

Before THOMAS F. SMEGAL, LISA M. GUIJT, and
BRENT M. DOUGAL, *Administrative Patent Judges*.

SMEGAL, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Rainer Hain and Martin Allgaier (Appellants) seek our review under 35 U.S.C. § 134 of the Examiner's rejection² under 35 U.S.C. § 103(a) of claims 1, 3, 6, 7, 11–14, and 16 as unpatentable over Allgaier (DE 102006016566 A1, pub. Mar. 29, 2007) and Taniguchi (US 6,727,473 B2, iss. Apr. 27, 2004); of claims 8 and 9 as unpatentable over Allgaier, Taniguchi, and Zach (DE 102008009429 A1, pub. Sept. 18, 2008); of claim 10 as unpatentable over Allgaier, Taniguchi, Zach, and Kern (EP 1881315

¹ According to Appellants, the real party in interest is BORGWARNER BERU SYSTEMS GMBH. Appeal Br. 3.

² Appeal is taken from the adverse decision of the Examiner as set forth in the Final Office Action, dated March 7, 2014 ("Final Act.").

A2, pub. Jan. 23, 2008); and of claims 17–19 as unpatentable over Allgaier, Taniguchi, and Muller (US 5,589,091, iss. Dec. 31, 1996).³ We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

CLAIMED SUBJECT MATTER

Claim 1, the sole independent claim, is reproduced below and illustrates the claimed subject matter, with disputed limitations emphasized.

1. A glow plug, comprising:
 - a housing;
 - a ceramic glow pencil having a first end projecting from the housing and a second end disposed in the housing;
 - a feed line arranged in the housing and leading to the glow pencil; and
 - a sleeve enclosing a first section of the glow pencil projecting from the housing;wherein the glow pencil comprises a second section that is surrounded by the housing and tapered towards the second end; and
 - a contact element*** disposed in the housing and around the second section of the glow pencil where the glow pencil projects through the contact element, wherein the contact element includes a narrowing section configured to surround the tapering of the second section of the glow pencil ***forming a circumferentially continuous annular electrical connection between the contact element and the second section of the glow pencil, and*** wherein the contact element ***includes at least one circumferentially continuous annular space between the contact element and the tapered second section*** wherein the at least one circumferentially continuous annular space comprises

³Claims 2, 4, 5, and 15 were canceled in an Amendment filed April 12, 2013.

an increasing gap between the contact element and the second section of the glow pencil when moving away from the circumferentially continuous annular electrical connection, where the at least one circumferentially continuous annular space is configured to act as a buffer to accept a braze or a solder.

ANALYSIS

Obviousness of Claims 1, 3, 6, 7, 11–14, and 16 over Allgaier and Taniguchi

Appellants argue claims 1, 3, 6, 7, 11–14, and 16 together in contesting the rejection of these claims as obvious over Allgaier and Taniguchi. *See* Appeal Br. 12–15; Reply Br. 2–4. We select claim 1 as the representative claim for this group, and the remaining claims stand or fall with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Regarding claim 1, the Examiner finds that Allgaier discloses a glow plug with substantially all of the elements of the claim including, *inter alia*, a contact element “forming an annular electrical connection between the contact element and the second section of the glow pencil” and “at least one annular space between the contact element and the tapered second section . . . configured to act as a buffer to accept braze or a solder.” Final Act. 2–3 (citing Allgaier, Fig. 14, ¶¶ 48, 69, 70). However, the Examiner acknowledges that Allgaier “does not disclose that the annular electrical connection between the contact element and the second section of the glow pencil is *circumferentially continuous*,” or that “the contact element *includes at least one circumferentially continuous annular space between the contact element and the tapered second section* [having] an increasing gap between the contact element and the second section of the glow pencil

when moving away from the circumferentially continuous annular electrical connection.”⁴ *Id.* at 3. (emphasis added).

The Examiner then looks to Taniguchi for disclosing an annular electrical connection between a contact element and a section of a glow pencil that is circumferentially continuous and wherein the contact element includes at least one circumferentially continuous annular space between the contact element and the section of the glow pencil, wherein the at least one circumferentially continuous annular space comprises an increasing gap between the contact element and the section of the glow pencil when moving away from the circumferentially continuous annular electrical connection.

Id. at 4 (citing Taniguchi, Fig. 5A).

Based on the foregoing, the Examiner reasons that it would have been obvious to apply “the teachings of Taniguchi to Allgaier, i.e. modifying the space (which has hard solder layer 4) between the second section of the ceramic glow pencil (which corresponds to ceramic heating conductor 48) and the contact element (metallic sleeve 47, Fig. 14) of Allgaier,” and that “[o]ne of ordinary skill in the art at the time the invention was made would be motivated to do so, [] in order to prevent the glow pencil from sliding out of the contact element, as suggested by Taniguchi in col. 9: lines 11–16.”

Id. at 4–5.

In taking issue with the analysis and conclusions presented in the Final Office Action, Appellants first contend that “all of the structures of the housing (4), silver solders (10), contact elements (3) and circumferential

⁴ Notably, Figure 2 of Allgaier, described at paragraphs 46 to 48, appears to illustrate an increasing gap between the contact element 2 and the tapered second section of the glow pencil.

groove (32s) [of Taniguchi] are not electrical connections.” Appeal Br. 13; Reply Br. 2–3. Appellants also point out that “Taniguchi’s electrical connections were made through the power feeding leads 15 and 16 and not through any of the structure of the circumferential groove 32s, the solder 10 or the metallic cylinder member 3.” *Id.* at 14 (citing Taniguchi, col. 1, ll. 40–52).

In response, the Examiner first explains “[w]hile it is true that Taniguchi discloses power feeding leads 15 and 16 which feed electric current to the ceramic heater 2,” . . . Taniguchi discloses that the ‘power feeding leads 15 and 16 are soldered to those terminals,’” so that “[t]he heater device thus constructed is able to generate a resistive heat to heat the ceramic heater 2 by feeding an electric current thereto (i.e. the ceramic heater 2) through the power feeding leads 15 and 16.” Ans. 3 (citing Taniguchi, col. 1, ll. 48–52).

The Examiner continues by reasoning that

Figure 5A shows a solder layer 10 deposited between the ceramic heater 2 and the metallic cylinder 3. Since current is required to run through the ceramic heater 2 in order to resistively heat the ceramic heater 2, and the solder layer 10 and metallic cylinder 3 are made of metals, then technically, a degree of current is running from the ceramic heater 2, through the solder layer 10, and to the metallic cylinder 3.

Id. From the foregoing, the Examiner concludes that “this cited structural feature of Taniguchi does, in fact, have an annular electrical connection, as claimed.” *Id.*

Furthermore, irrespective of what Appellants contend is disclosed by Taniguchi, the Examiner is relying on the combination of Taniguchi and

Allgaier, having observed in the Final Action that “Allgaier was also indicated to have an annular electrical connection,” reasoning that

[t]he German-English translation of Allgaier discloses in paragraph 0069 that ““The second contact surface 52 is provided with a metal sleeve 47 soldered, which forms part of the metallic case of a glow plug or is connected to and operated at *ground potential* . . . The metallic conductor 46 performs the operation of the glow plug, the positive potential from the electrical system of the vehicle with a diesel engine.”

Id. at 4. The Examiner explains that “[t]his means that current is running from the metallic conductor 46 and to the grounded metal sleeve 47, as shown in Figure 14.” *Id.* Appellants have not apprised us of any error in the Examiner’s findings or conclusions regarding this disclosure of Allgaier, and we find none.

Appellants continue by contending that “Allgaier’s ceramic insulator 49 as seen in Allgaier’s FIG. 14 is part of the glow pencil itself . . . and is not a separate sleeve that goes over the glow pencil,” as compared to Appellants’ sleeve, which “is a separate structure that protects the glow pencil from the harsh environmental conditions inside a combustion chamber . . . but can still abut the contact element or overlap the contact element when assembled.” Appeal Br. 15; Reply Br. 3–4.

However, we determine the scope of the claims in a patent application upon giving claims “their broadest reasonable interpretation consistent with the specification” and “in light of the specification as it would be interpreted by one of ordinary skill in the art.” *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). Thus, regarding the claim recitation of “a sleeve enclosing a first section of the glow pencil projecting from the housing,” as the Examiner explains, “when taking the language of the claims

into consideration, . . . it is proper to interpret the conductor 48 to be a separate glow pencil structure with a ceramic insulator 49, interpreted to be a separate sleeve structure around the glow pencil structure.” Ans. 5. We agree.

Appellants also contend that “Allgaier simply never teaches where the contact element abuts to the sleeve, where the contact element and the sleeve overlap each other, where a sleeve is connected to the housing via a sealing element, where a sleeve and the contact element are manufactured from different materials or where the glow pencil is press-fitted into the sleeve.” Appeal Br. 15. However, each of Appellants’ contentions are unavailing as they are not commensurate with the scope of claim 1, which does not recite any of the alleged distinctions from the teaching of Allgaier. *See* Appeal Br. 17, Claims App. As we are instructed by our reviewing court, “limitations are not to be read into the claims from the [S]pecification.” *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) (citing *In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989)); *see also In re Self*, 671 F.2d 1344, 1348 (CCPA 1982).

For the foregoing reasons, we discern no error in the Examiner’s findings and sustain the Examiner’s unpatentability rejection of claims 1, 3, 6, 7, 11–14, and 16 over Allgaier and Taniguchi.

*Obviousness of Claims 8 and 9 over Allgaier, Taniguchi, and Zach;
and of Claim 10 over Allgaier, Taniguchi, Zach, and Kern*

Other than observing “these rejections are also unsupportable because the base combination of Allgaier with Taniguchi did not equate to the Applicant's invention,” (Appeal Br. 15), we understand Appellants’ appeal

of the rejections of claims 8–10 to rest on the arguments presented against the rejection of claim 1, which we found not demonstrative of error in the Examiner’s rejection of claims 1, 3, 6, 7, 11–14, and 16 over Allgaier and Taniguchi, as set forth *supra*. Therefore, we sustain the Examiner’s unpatentability rejection of claims 8 and 9 over Allgaier, Taniguchi, and Zach; and of Claim 10 over Allgaier, Taniguchi, Zach, and Kern.

Obviousness of Claims 17–19 over as unpatentable over Allgaier, Taniguchi, and Muller

Although claims 17–19 are not separately argued, Appellants contend that the “Examiner uses Muller on page 11 of the Office Action to teach a first tapered end of a glow pencil but still relied upon Allgaier to teach a sleeve, to which it does not.” Appeal Br. 15. Thus, we understand Appellants’ appeal of the rejection of claims 17–19 to rest on the arguments presented against the rejection of claim 1, which we found not demonstrative of error in the Examiner’s rejection of claims 1, 3, 6, 7, 11–14, and 16 over Allgaier and Taniguchi, as set forth *supra*. Accordingly, we sustain the Examiner’s unpatentability rejection of claims 17–19 over Allgaier, Taniguchi, and Muller.

DECISION

We AFFIRM the Examiner’s rejections.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED